While the Office action dated January 1, 2001 included art rejections, the Office action did not include any 35 U.S.C. § 112 rejections.

The Office action dated June 6, 2001, states that is unclear how the first and second surface geometries mate. The applicants respectfully submit that the recitation of the manner in which the two surface geometries mate is not required to make claim 29 definite. The relevant aspect of the claim is that the two surface geometries are adapted to mate, it is of little consequence how exactly they mate. Furthermore, with regard to how the two surface geometries mate, claim 29 additionally recites that the first and second geometries interengage, which is a clear indication of one manner in which the two surface geometries mate. Because the claim language is clear and unambiguous with respect to the mating of the first and second surface geometries, the rejection should be withdrawn.

Additionally, the Office action dated June 6, 2001, states that claim 29 is indefinite because the claim does not specify exactly where the first surface geometry is located on the motor shaft. Again, this claim language has been previously presented and has not been previously rejected under 35 U.S.C. § 112. Further, the relevant aspect of the claim is not the exact location of the surface geometry or which surface geometry is male and which is female. What is relevant is that the first and second surface geometries mate with one another. The applicant is unsure how the examiner is lead to believe that the surface geometry is exclusively on the outside of the shaft because this language is clearly not present in claim 29 and a brief review of the drawings of the case reveals that the surface geometry could either be a compartment in the shaft as shown in FIGS. 4-6 or could be on the outside of the shaft as shown in FIGS. 1-3. The limitations recited in claim 29 are intended to cover at least the configurations shown in the drawings. There is no reason for the applicants to restrict claim 29 to a particular location for the first surface geometry; the limitation that the motor shaft includes a first surface geometry is sufficiently clear.

Based on the foregoing, the applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 112.

REJECTION OF THE CLAIMS UNDER 35 U.S.C. §§ 102 and 103

The applicants respectfully traverse the rejection of claims 29 and 32 as anticipated by U.S. Patent No. 5,749,786 to Pattok and the rejection of claim 30, 31 and 33-38 as obvious

over Pattok alone or in combination with U.S. Patent No. 3,102,490 to Shiley. Reconsideration of the foregoing rejections is respectfully requested.

Independent claim 29 and claims 30-38 dependent directly or indirectly thereon, recite a method of assembling a motor shaft with a motor component. The method comprises the steps of providing a motor shaft and a shaft extension having a first and second surface geometries, respectively, wherein the first and second surface geometries comprise non-circular cross sections adapted to mate with one another. The method further recites interengaging the first surface geometry of the motor shaft with the second surface geometry of the shaft extension so that the shaft extension rotates with the motor shaft and installing a second end of the shaft extension into a lower assembly.

Pattok discloses a shaft coupling for use in a power steering mechanism of an automobile. In particular, Pattok discloses a steering wheel (60) coupled to a first element (54) that includes a socket (76). A plunger (80) of the second element (56) is inserted into the socket (76). When a transducer (72) senses relative rotation between the lower segment (30) and the second element (56), an electric motor (not shown) is enabled to provide power assist steering by rotating the worm wheel (44) that is rigidly attached to the lower segment (30).

In contrast to claim 29, Pattok does not disclose providing a motor shaft having a first surface geometry that engages with a shaft extension having a second geometry because the first and second elements (54, 56) of Pattok are steering column shafts and are not motor shafts. The examiner correctly notes that the electric power steering gear (18) is rigidly attached to the lower segment (30). However, even if the lower segment (30) is considered, *arguendo*, to be a motor shaft, the lower segment (30) is a separate and distinct element from the second element (56), which includes the plunger (80) that engages with the first element (54). Neither the first element nor the second element of Pattok appears to be directly connected to a motor and, therefore, neither can be fairly described as motor shaft. Because the first and second elements of Pattok are not motor shafts, Pattok cannot meet the claim limitation of providing a motor shaft having a first surface geometry that engages with a shaft extension having a second surface geometry.

Furthermore, steering mechanisms are typically slowly rotating systems having a limited amount of rotation during operation. In contrast, motor shafts and shaft extensions are typically rapidly rotating elements. Because Pattok pertains to steering mechanisms,

which are systems having a relatively low number of revolutions per minute, there would be no indication that the coupling disclosed in Pattok could operate, or should be used, in the relatively high revolution per minute environment of motor shafts and motor shaft extensions. There would be no motivation to look to Pattok to solve the problem of linking a motor shaft and a shaft extension. Additionally, there would be no motivation to modify Pattok for use with motor shafts and shaft extensions.

The prior art must teach or suggest all claim elements and make a suggestion of, or provide an incentive for, a claimed combination of elements to establish a prima facie case of obviousness. *See, In re Oetiker*, 24 U.S.P.Q.2d 1443, 1446 (Fed. Cir. 1992); *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. 1985); *In re Royka*, 490 F.2d 1981 (CCPA 1974) and M.P.E.P. §2143. It is also clear that if a proposed modification to a prior art invention would render that invention unsatisfactory for its intended purposes, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). Because Pattok does not disclose or suggest providing a motor shaft having a first surface geometry that engages with a shaft extension having a second geometry, as recited by the claims at issue, Pattok cannot render the pending claims obvious.

For the foregoing reasons, reconsideration and withdrawal of the rejections of the claims and allowance thereof are respectfully requested.

Respectfully submitted,
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ATTACHMENT A - THE STATUS OF THE CLAIMS AT ISSUE

29. A method of assembling a motor shaft with a motor component, the method comprising the steps of:

providing a motor shaft having a first surface geometry comprising a non-circular cross section;

providing a shaft extension having a first end having a second surface geometry comprising a non-circular cross section adapted to mate with the first surface geometry of the motor shaft;

interengaging the first surface geometry of the motor shaft with the second surface geometry of the shaft extension so that the shaft extension rotates with the motor shaft; and

installing a second end of the shaft extension into a lower assembly.

30. The method of claim 29, wherein the first surface geometry comprises a hexagonal cross section.

31. The method of claim 29, wherein the first surface geometry comprises a square cross section.

32. The method of claim 29, wherein the first surface geometry defines a compartment within the motor shaft.

33. The method of claim 29, further comprising a step of tightening a retainer onto the motor shaft.

34. The method of claim 33, wherein said retainer comprises a hexagonal threaded nut.

35. The method of claim 29, wherein the lower assembly comprise a pump impeller.

36. The method of claim 29, wherein the lower assembly comprises a bearing.

37. The method of claim 36, wherein the bearing comprises a powdered metal bearing.

38. The method of claim 36, wherein the bearing comprises a roller ball bearing.